

What is claimed is:

1. A method of producing an ester of creatine and a lower alcohol, comprising the steps of:

5 a) providing a reaction medium comprising creatine and said lower alcohol; and

b) heating said reaction medium in the presence of an acid catalyst generated *in situ*, at a temperature between about 35°C and about 50°C to yield said ester.

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2. The method of claim 1, wherein said acid catalyst is generated by the addition of an acyl halide to said reaction medium.

15 3. The method of claim 2, wherein said lower alcohol comprises ethanol and said acyl halide comprises acetyl chloride.

20 4. The method of claim 3, wherein acetyl chloride is added to the reaction medium at a rate such that the temperature of the reaction medium does not exceed 60°C.

25 5. The method of claim 3, wherein the ratio of creatine to ethanol in said reaction medium is in the range of about 1 gram creatine: 6 to 10 ml acidified ethanol.

6. The method of claim 5, wherein said ratio is 1 gram of creatine: 6 ml acidified ethanol.

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7. The method of claim 3, wherein the mole equivalents of acetyl chloride to creatine is in the range of about 1.4 - 2.0.

8. The method of claim 7, wherein said range of mole equivalents of acetyl chloride to creatine is 1.5-1.6.

5        9. The method of claim 3, wherein said ethanol is denatured ethanol comprising of about 95% ethanol and about 5% ethyl acetate.

10       10. The method of claim 1, wherein said heating step is carried out at a temperature in the range of 35°C and 40°C.

15       11. The method of claim 1, further comprising the step of purifying the creatine ester product.

12. The method of claim 11, wherein said purification step comprises cooling the reaction mixture to a temperature in the range of about 6°C to 30°C to effect crystallization of the reaction product,  
20       collecting the crystalline reaction product, washing the reaction product, and drying to obtain a purified ester of creatine and said lower alcohol.

13. The method of claim 12, wherein said  
25       temperature of the cooled reaction is in the range of about 6°C to 25°C.

14. The method of claim 13, wherein said  
30       temperature of the cooled reaction is about 6°C.

15. The method of claim 12, wherein collection of the crystalline reaction product is performed by filtration.

16. The method of claim 11, wherein said purification step comprises crystallization of the reaction product from ethanol at 35-60°C.

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17. The method of claim 10, wherein the reaction medium is heated for about 20 hours.